Before the
FEDERAL COMMUNCIATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
	)	
Spectrum Needs of Emergency Response Providers	)	FCC 05-80
	)	WT Docket No. 05-157
	)	
Input Required for FCC Report Mandated by the Intelligence Reform and Terrorism Prevention Act of 2004	)	
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COMMENTS OF BIZCOM USA, INC. d/b/a CX2 TECHNOLOGIES

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SUMMARY

BizCom USA, Inc. (and its subsidiaries) d/b/a CX2 Technologies applauds the efforts by Congress and the Federal Communications Commission ("FCC" or the "Commission") to explore the spectrum needs of emergency response providers. Private sector technology companies play a vital role in offering cutting edge technologies and solutions that can better respond to the needs of public safety, and which can be deployed efficiently and effectively. CX2 welcomes the opportunity to offer its comments in order to assist Congress and the FCC in achieving the goals mandated by the Intelligence Reform and Terrorism Prevention Act of 2004.

CX2 poses an innovative solution to address the need for public safety spectrum: the 220-222 MHz Band. The 220 MHz band represents an underutilized and untapped resource for a nationwide public safety data communications system. At present, the 220 MHz service remains relatively undeveloped due to equipment availability issues and economic downturn. Because the 220 MHz band has yet to fully realize its potential, it offers substantial capacity available for public safety purposes should the current licensees seek to pursue public safety applications, as CX2 has done. The geographic-based licensing scheme of the 220 MHz band, along with its spectrally-efficient narrowband 5 KHz channels, is particularly well-suited to the interoperability concerns of emergency response providers, with respect to data applications. Such a network will not compete for bandwidth with police, fire and other responders with heavy broadband requirements and interference concerns. In addition, 220 MHz provides significant advantages over other bands that are currently being explored for public safety applications deployment: lower cost and better coverage.

In assessing potential spectrum to be used for public safety, the Commission should note that commercial operators in the 220 MHz band, such as CX2, have already developed a wide range of data software solutions that target public safety needs and have the ability to provide critical data communications in emergency situations. For example, CX2's GeoCommand software can be used on a stand-alone basis or incorporated into a 220 MHz network to provide first responders with key location data in response to all types of emergencies and natural disasters. CX2's EM/2000 database technology offers emergency response managers the ability to use real time technology to provide oversight and coordination of response and remediation efforts. And CX2's Med•Stat•US technology provides health care facilities and data-radio-outfitted ambulances with the ability to coordinate hospital availability and patient tracking with emergency managers and first responders.

CX2 believes that a successful interoperable system must be deployed with dedicated spectrum on a command-and-control basis, and CX2 strongly believes that the 220-222 MHz Band is an optimal solution for a data driven, command-and-control, nationwide public safety communications network – the spectrum is available and the technology solutions are proven.

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To: The Commission

COMMENTS OF
BIZCOM USA, INC. d/b/a CX2 TECHNOLOGIES

BizCom USA, Inc. (and its subsidiaries) d/b/a/ CX2 Technologies ("CX2"), by its counsel, hereby submits these comments in response to the Public Notice issued by the Federal Communications Commission ("FCC") requesting input on the short-term and long-term spectrum needs of emergency response providers.[1] That input will be used by the FCC to prepare a report to Congress mandated by the Intelligence Reform and Terrorism Prevention Act of 2004.[2] In particular, Section 7502(c) of the Intelligence Reform Act directs the FCC, in

[1] Public Notice, FCC 05-80, WT Docket No. 05-157, released March 29, 2005 ("March 29 Public Notice").

[2] Intelligence Reform and Terrorism Prevention Act of 2004, Pub. L. 108-458, 118 Stat. 3638 (2004) at 3856 ("Intelligence Reform Act"). The report is due to Congress by December 17, 2005.

consultation with the Secretary of Homeland Security and the National Telecommunications and Information Administration, to --

(i) seek input from the Federal, State, local and regional emergency response providers regarding the operation and administration of potential nationwide interoperable broadband mobile communications network; and

(ii) consider the use of commercial wireless technologies to the greatest extent practicable.

CX2 applauds the efforts by Congress and the FCC to explore the spectrum needs of emergency response providers in order to better facilitate the deployment of interoperable networks serving local, state and federal entities throughout the country. There should be no doubt that public safety needs have grown tremendously in recent years, with emergency response providers and related service and equipment providers facing increasing challenges brought about by spectrum allocation and use issues, interference problems, regulatory structural constraints and technical limitations. By focusing on these challenges and soliciting comments on how best to address them, Congress and the FCC have provided an invaluable opportunity for industry participants to showcase their technologies and offer cutting edge solutions that are responsive to the needs of public safety, and which can be deployed in an efficient and cost effective manner.

CX2 is a leading service provider of services offered over 220 MHz frequencies, and has invested heavily in 220 MHz equipment, systems technology and systems configuration to enhance and expand the services available to the public. CX2 holds licenses for approximately 1,170 total frequencies in the 220 MHz band -- including a nationwide 10-channel license, six regional economic area group (EAG) licenses of 15 channels each, and 70 Economic Area (EA) licenses of 10 channels each. In addition, CX2 holds approximately seventy-five 5-channel Phase I 220 MHz licenses, many of which operate in areas entirely independent of CX2's Phase

II licensed areas. In all, CX2's licenses provide geographic coverage (to varying degrees of channel depth) of the entire United States. With these frequencies, CX2 is capable of deploying nationwide, regional and local data networks within an efficient narrowband framework which can meet a wide variety of urgent public safety needs. Equally important, because these networks all would operate off of a common spectrum platform, they would be capable of "talking" to each other as the situation warrants, thus meeting the Commission's crucial goal of interoperability.

Fundamentally, these comments are intended to present the 220-222 MHz band as spectrum that potentially offers effective solutions for public safety needs. In particular, CX2 believes that the 220-222 MHz band is ideally suited for the deployment of effective data networks usable by varied emergency response providers, and will discuss the basis for its belief in greater detail below. In recent years, CX2 has expended extraordinary time and money developing a variety of software solutions specifically tailored to public safety needs, which can be deployed either in its own wireless 220 MHz networks or other spectrum bands. Those solutions -- including CX2's GeoCommand product, its proprietary Emergency Management System (EM/2000), and the Med·Stat·US system -- expand and enhance the information flow relating to emergency situations and will better enable government and private industry to respond quickly and effectively to such situations. The characteristics of each of these products also will be discussed in greater detail below.

The deployment of the public safety software products described in these comments into 220 MHz networks provides an effective and efficient means for emergency response providers and other agencies to meet their public safety needs. CX2 is dedicated to developing these networks to their fullest potential and strongly believes that this technology should be considered

part of any comprehensive solution to the public safety challenges currently facing our agencies and public officials.

I.

DISCUSSION

A. The 220-222 MHz Band Is a Hidden Gem of Spectrum For Public Safety/First Responder Use.

Emergency response providers will almost certainly rely heavily on commercial wireless technologies to meet the growing public safety needs of this country. Any analysis of these technologies, however, must also consider the spectrum in which the technology is being, or will be, deployed. In its Public Notice, the FCC notes that more than 97 megahertz of spectrum is allocated in support of public safety communications, and asks whether an additional allocation of spectrum in the 700 MHz band should be granted by Congress.[3] While these bands and allocations may well contribute significantly to the public safety cause, CX2 respectfully suggests that the 220-222 MHz band exhibits characteristics which make it ideally suited for public safety use and should be considered an integral part of any plan to meet spectrum needs for public safety.

1. The 220-222 MHz Band Offers Available Spectrum Ideally Configured For Public Safety Needs.

Frequencies in the 220-222 MHz band are available for land mobile and fixed use for both Government and non-Government operations.[4] This spectrum was licensed in two phases:

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[3] March 29 Public Notice. Among the 97 megahertz of spectrum allocated for public safety use is 24 MHz in the 700 MHz band, 50 MHz in the 4940-4990 MHz band, television spectrum in the New York City area, and an additional 4.5 MHz made available as part of the 800 MHz band reconfiguration. Id.

[4] The 220-222 frequencies were reallocated from the Amateur Radio Service in 1988 and initial rules for the 220 MHz service were subsequently adopted in 1991. See Amendment of Part 2 of the

Phase I by lottery in the early 1990s, and Phase II by auctions in the late 1990s and early 2000s.[5] Despite the fact that these frequencies have been licensed for some time, the 220 MHz service remains relatively undeveloped due to equipment availability issues and an industry downturn.[6] Indeed, acknowledging the difficulties brought about by the equipment and industry issues, the FCC recently granted a blanket extension of time until November 5, 2007 for certain Phase II licenses to meet the specified five year interim construction benchmark.[7] Because this spectrum has yet to fully realize its potential, it offers substantial capacity available for public safety

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Commission's Rules Regarding the Allocation of the 216-225 MHz Band, Report and Order, GEN Docket No. 87-14, 3 FCC Rcd 5287 (1988) ("220 MHz Allocation Order"); see also Amendment of Part 90 of the Commission's Rules to Provide for the Use of the 220-222 MHz Band by the Private Land Mobile Radio Services, PR Docket No. 89-552, Report and Order, 6 FCC Rcd 2356 (1991) ("220 MHz Report and Order"). These initial rules essentially dedicated the 220-222 MHz spectrum for the development of spectrally efficient narrowband technology by the assignment of 200 five kilohertz channel pairs in various channel block sizes.

[5] The Phase I licenses were issued on a site-specific and nationwide basis; licenses issued under the Phase II auction regime were based on a geographic-area licensing scheme with licenses falling into one of three categories: three nationwide licenses, thirty licenses for multi-state economic area groupings and 875 licenses for more localized economic areas, each of which for the most part, still covered greater area than the Phase I site-based licenses associated with the same general area. See Amendment of Part 90 of the Commission's Rules to Provide for the Use of the 220-222 MHz Band by the Private Land Mobile Radio Service, PR Docket No. 89-552, Implementation of Sections 3(n) and 332 of the Communications Act, Regulatory Treatment of Mobile Services, GN Docket No. 93-252, Implementation of Section 309(j) of the Communications Act - Competitive Bidding, PP Docket No. 93-253, *Third Report and Order; Fifth Notice of Proposed Rulemaking*, 12 FCC Rcd 10943 (1997)("Third Report and Order").

[6] Ten of the channels in the 220 MHz band in Phase II were set aside specifically for public safety use. Third Report and Order, at ¶ 61. In addition, one of the 10-channel Phase II nationwide licenses was reserved for federal use -- although CX2 has been unable (even after filing a Freedom of Information Act [FOIA] request) to confirm how or even if these nationwide channels are being used at the present time. Id., at ¶ 32. Nationwide 220 MHz channels also are currently held by National Rural Telecommunications Cooperative (WPCU518) and the Association of American Railroads (WPWY753), with no indications that either licensee is making extensive use of these frequencies as of this date. All of these frequencies -- along with the approximately 1,170 220-222 MHz frequencies licensed by CX2 -- could be a key part of the FCC's national public safety strategy should the existing licensees (such as CX2) seek to deploy networks serving public safety needs.

[7] This extended date was made available to all Phase II licensees who filed an extension request prior to the applicable five-year construction deadline and for all Phase II licenses whose five year construction deadline had not yet expired. Memorandum Opinion and Order, DA 04-2100, released July 13, 2004.

purposes should the current licensees seek to pursue public safety applications -- as CX2 has done.[8] Moreover, the current low usage within this band and the configuration of the channels means interference issues typical in broadband applications can be avoided.[9]

In addition, the geographic-based licensing regime governing the 220 MHz service is particularly well-suited to the interoperability concerns of emergency responder providers. The FCC has been charged with assessing the extent to which various potential networks will enable "interoperable communications," defined in the Intelligence Reform Act as --

> [t]he ability of emergency response providers and relevant Federal, State, and local government agencies to communicate with reach other as necessary, through a dedicated public safety network utilizing information technology systems and radio communications systems, and to exchange voice, data, or video with one another on demand, in real time, as necessary.[10]

The deployment of 220 MHz networks over common frequencies covering nationwide and large regional areas better ensures that critical information will be shared over a larger area by public safety officials and other participants in an efficient, effective and -- most importantly -- seamless manner.

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[8] As will be discussed, infra, these are precisely the applications that CX2 has pursued, and which it expects to deploy in substantial portions of its licensed spectrum.

[9] With respect to the interference issue, the 220-222 MHz band did not try to incorporate different types of services within the band, thereby avoiding the rebanding requirements associated with the 800 MHz and 900 MHz bands. As a result, public safety networks can be deployed immediately in the 220-222 MHz band without concern about interference from adjacent channel cellular-like networks.

[10] Intelligence Reform Act, §7303(g). The FCC's definition of "interoperability" set forth in Section 90.7 of the Commission's Rules, 47 C.F.R. §90.7, echoes this sharing concept, describing "[a]n essential communication link within public safety and public service wireless communications systems which permits units from two or more different entities to interact with one another and to exchange information according to a prescribed method in order to achieve predictable results."

2. The 220-222 MHz Band Provides an Excellent Option for Data Networks Addressing Public Safety Needs.

CX2, as a primary licensee of the 220 MHz spectrum, has devoted significant resources to developing new data applications for the 220 MHz service and believes that deployment of a data network in this band offers unique opportunities in the public safety arena. The 220 MHz band was originally envisioned as a proving ground for more spectrally efficient narrowband technology, with licenses restricted to 5 kHz channels. In keeping with this vision -- and indeed, confirming its legitimacy -- CX2's planned network is dedicated to collecting and distributing data within a narrowband framework. Indeed, CX2 is the *only* company that has pursued the Commission's vision for more efficient narrowband technologies in the 220-222 MHz band, to the point of developing a patented protocol that effectively works within the FCC 5 KHz spacing. Such networks will not compete for bandwith with police, fire and other responders with heavy requirements for two-way voice, paging or cellular service. Rather, CX2's narrowband data network could satisfy the data component of any public safety strategy in a more efficient and cost-effective manner, leaving the voice and video applications to other networks.[11]

An example of just one data function offered by CX2 illustrates the effectiveness of a data network operating within the narrowband 220 MHz framework. CX2 can deploy a national sensor network over its nationwide or regional 220 MHz frequencies, in which sensor data is sent to Local Site Servers (LLS) located in hardened facilities. A single LSS can manage 24 tower sites covering approximately 30,000 square miles. The LSS sends the data to a gateway from which it can be distributed in any way necessary, thus meeting interoperability requirements.

[11] To the extent that CX2 or other commercial service providers seek to expand their existing 220 MHz data networks to provide voice and/or video as part of their nationwide emergency response platform, additional compatible spectrum would be necessary. One possible area for such expansion would be the adjacent 222-225 MHz band, which also is currently underutilized.

The network administrator can reroute sensor data to accommodate any response scenario. This function can be performed independent of voice and/or video functions provided over other spectrum, with public officials and agencies coordinating the information received over this network with other services serving other public safety purposes.

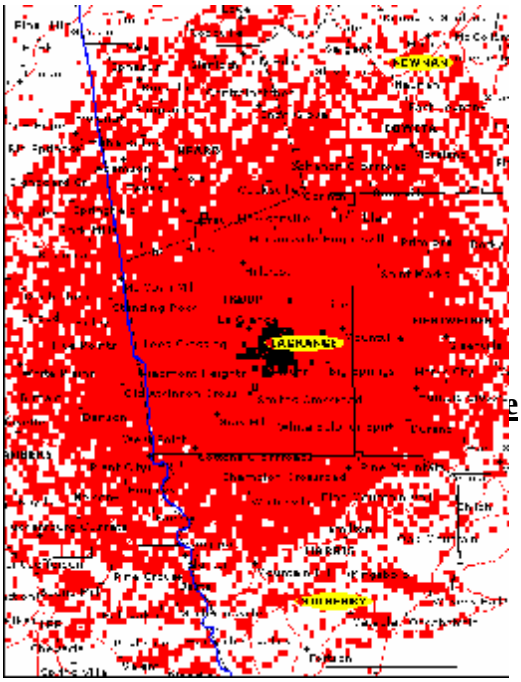
The cost effectiveness of this data function also is reflected by CX2's frame-based Over-the-Air Protocol (OTAP), in which messages of 50 bytes can be queried at a rate of 350 endpoints-per-minute, per channel. This would be the rate at which data points would be polled during a disaster. During non-disaster periods, it would be more realistic to poll the data points less frequently to ensure network health. The system can service 5,000 endpoints per channel per location while polling each endpoint every 15 minutes. The majority of these endpoints would most likely be fixed, but mobile endpoints could also be used with automatic vehicle location (AVL) attached if desired.

3. The 220-222 MHz Band Offers Significant Coverage Advantages Over Other Spectrum Options.

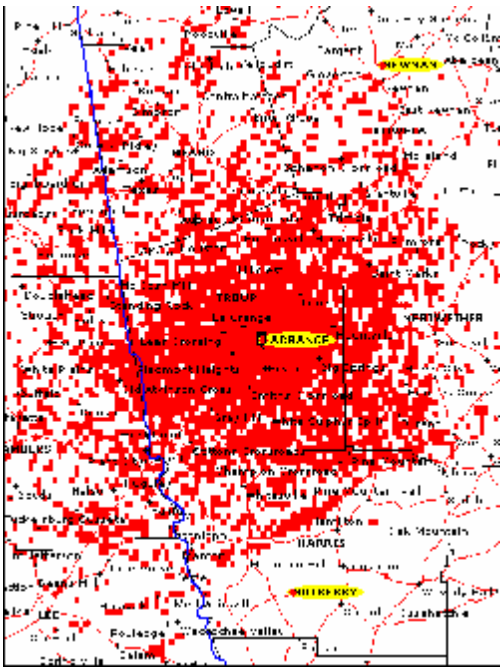
The technical characteristics of the 220 MHz band provide another significant advantage to this spectrum over other bands: a more expansive coverage footprint. In general, assuming average terrain conditions, a single tower site in the 220 MHz band provides reliable coverage of an approximately 1200 square mile area. This typical footprint is significantly greater than the footprint associated with comparable tower sites in the 700, 800 or 900 MHz services, due primarily to lower frequency and lower foliage absorption of the RF signal. This coverage difference is graphically illustrated on the next page by a comparison of the RF signal coverage generated from a typical tower in the 220 MHz service with the RF Signal generated from a typical tower in the 700 MHz service at the same location (signal coverage shown as red area):[12]

[12] Software: ComStudy V2.0, Longley Rice Method, 90% Confidence, TalkOut, 70 Watts.

220 MHz Coverage



700 MHz Coverage



As is readily apparent from these graphic illustrations, the 200 MHz coverage is far superior to the 700 MHz coverage. Comparisons of 220 MHz coverage areas with the footprints generated by 800 and 900 MHz signals are equally telling -- and confirm the superiority of 220 MHz coverage for the same reasons.

In sum, any analysis of the spectrum needs for public safety purposes should consider the contributions to be made from various spectrum sources. And as discussed above, the 220 MHz band is ideally suited as a potential source for public safety services. Commercial operators in the band, such as CX2, already have developed a range of data software solutions targeting public safety needs and have the ability to provide critical data communications in emergency situations in an efficient and effective manner. Certain of the frequencies in this band have been set aside specifically for public safety and government use. The fact that the band is underutilized at the present time minimizes interference concerns and ensures adequate spectrum for effective data solutions to public safety needs. In addition, the technical characteristics of the band provide significant advantages over other spectrum -- particularly with respect to the coverage footprint. While the 220 MHz band obviously would not meet all of the needs for public safety, it should be viewed as a significant component of any analysis of spectrum appropriate for public safety use.

B. CX2's Successful Use of Public Safety Applications Further Illustrates the Potential for the 220-222 MHz Band.

Having described the characteristics of the 220 MHz band and the extent to which such characteristics lend themselves to public safety use, a review of certain software solutions devised by CX2 for use by emergency responder providers highlights the extent to which the 220 MHz band can contribute to the overall strategy for public safety communications networks.

The White House, in its National Strategy for Homeland Security has called for "a fully integrated national emergency response system that is adaptable enough to deal with any terrorist attack, no matter how unlikely or catastrophic, as well as all manner of natural disasters." The Intelligence Reform Act as well has emphasized the extent to which any such network can provide "interoperable communications" between and among emergency response providers and relevant Federal, State, and local government agencies.[13] The software solutions discussed below -- while not intended to be an exclusive remedy for public safety needs -- provide practical examples of the extent to which efficient, narrowband data communications networks could function in the 220 MHz service to address critical public safety requirements.

CX2 has developed an emergency management data-driven telecommunications system that is fully responsive to the needs articulated by the White House and the Intelligence Reform Act. CX2's system has been successfully utilized by several individual states and Emergency Operations Centers ("EOCs") throughout the country, and the next natural step is for the system to be implemented on a national level. The system is comprised of three key software products that are currently offered on both a stand-alone basis, but which also have the option of being integrated into a wireless network on a regional or national basis. When used as a package, along with dedicated 220 MHz spectrum (which CX2 already holds) and/or wireline interconnection, the CX2 system successfully coordinates the four phases of the emergency management cycle -- preparation, mitigation, response and recovery -- using data-drive technology.

First, CX2's AVL-based GeoCommand system provides first responders, such as fire, police, and search and rescue, with key location data in response to all types of emergencies, ranging from a fire at a residence, to a full-scale natural disaster or terrorist attack. Second,

[13] Intelligence Reform Act, § 7303(a).

CX2's EM/2000 database technology offers emergency response managers (e.g., FEMA) the ability to use real-time technology to provide oversight and coordination of response and remediation efforts. Finally, CX2's Med•Stat•US technology provides health care facilities and ambulance contractors with the ability to coordinate hospital availability and patient tracking with emergency managers and first responders. More information on each of these solutions is set out below.

1. GeoCommand Exemplifies Cutting Edge Technology in First Responder Systems.

CX2's first responder product, GeoCommand, is a geographic information systems (GIS)-based mobile mapping technology that allows first responders instant access to multiple street maps, point-to-point directions, superimposed aerial photographs, and includes the capability to pan from map to map, zoom in on specific areas or structures, recall floor plans of buildings, and check incident pre-plans and embedded guides. GeoCommand provides first responders with all the necessary information in order to respond to emergencies of all sizes and proportions, and the solution eliminates the need for mapbooks and handbooks, and helps ensure availability of up-to-date area-specific data.

GeoCommand can be used either as a stand alone system or as an integrated system (with networked Computer Aided Dispatch, or automatic vehicle locations). As a stand-alone product, GeoCommand permits users to instantly access site-specific information prior to arriving on the scene of an emergency, for example: the shortest route to a destination; site address and phone numbers; alarm type, location, and keycode or combination; building data including construction, heating and cooling systems, type of occupancy; location of elevators; location of fire hydrants and information on water supply; points of contact and phone numbers; names of hospitals, police stations, fire stations, hazmat stations within a particular jurisdiction; possible

hazards to personnel and anticipated problems; site-specific pre-plans; hazardous materials information; access-embedded emergency response guides, North American Emergency Response Guide, First Responder Chem-Bio Handbook, and Improvised Explosive Device Response; aerial photographs for increased situational awareness; and building floor plans. When integrated with wireless communications systems, GeoCommand's utility is enhanced to provide exact characteristics of the current conditions first responders face during an incident. For example, GeoCommand can create a plume on a map of the incident site that documents the specific weather patterns (wind, rain, etc.) at a particular moment, at a particular location, and how the weather conditions affect the spread of a chemical or how current wind conditions might affect the flow of radiation. If a first responder is answering a call to such an incident, he would use GeoCommand to determine the best route to the scene, avoiding direct exposure to the incident itself, and being better able to prevent the spread of a particular chemical or other element. The GeoCommand unit with each first responder would work in consort with a data sensor network located at various intersections throughout the city. The real-time access to such critical data reduces response time and increases response efficiency and exactness, thereby saving more lives and property.

The practical application of the GeoCommand unit is best illustrated by a real life example of its use in a true emergency situation involving the Los Alamos National Laboratory (the "Laboratory") in New Mexico. In May of 2000, the Cerro Grande Fire made national and international news as it burned for 16 days across 45,000 acres in and around the nuclear weapons production and waste storage facilities at the Laboratory in northern New Mexico. Management of the emergency situation proved challenging on several fronts, and the Laboratory and town site were both evacuated. To safeguard computers, many were turned off

prior to departure of employees, and key personnel were difficult to locate due to the emergency scatter. It was during this time of disarray that emergency managers realized that it would be advantageous to have critical information available on-line in their Emergency Operations Center (EOC). The Laboratory sought an all-in-one solution that would meet the needs of the lab, and found such a solution with GeoCommand and EM/2000. Implementing GeoCommand at the Laboratory was a success because the user interface allows users to access a variety of data through one interface, e.g., GIS/map data, overhead imagery, site pre-plans, floor plans, images, documents, databases, etc. Those types of data are difficult to maintain manually, but GeoCommand was able to automate updates and synchronize these various data on a daily basis.

2. EM/2000 Database Software Coordinates Emergency Management and First Responders Efficiently and Effectively.

A second offering by CX2 -- EM/2000 -- is a relational database system that is utilized by emergency response managers, such as FEMA, to better facilitate the preparation and recovery aspects of emergency response on a bigger picture level. EM/2000 can be used on a stand-alone basis or as an integrated system to provide users with the ability to communicate with one another over local or wide area networks; create and log incident and incident reports; log messages; assign and track tasks; devise intuitive disaster plans; store and maintain information on organizations and individuals; actively maintain closures (bridges, roads, tunnels, airports, etc.) throughout an affected area; create incident-specific checklists for individuals as determined by the emergency administrator; quickly identify the status of surrounding shelters; deploy and receive inventories (both human and material resources); log incoming calls into the agency; track the status of weather conditions; create and issue situation reports, public statements and status reports to ensure that all decision makers are kept informed of the impacts on populations and property, response activities and priorities, and the status of key resources

being used to stabilize the situation; and to define emergency response goals for a particular period.[14]

EM/2000 is currently deployed in the State of North Carolina (and all counties), the State of Alabama (and all counties), the State of Mississippi, the State of Hawaii, Los Alamos National Laboratory, and six counties and three municipalities in the State of Florida. Additional details on some of these deployments are provided below.

Currently, the State of North Carolina is one of the largest users of EM/2000. North Carolina has implemented the software in the State Emergency Operations Center, as well as in all 100 counties. This structure allows the State to be completely interoperable during emergency situations. EM/2000 is used in North Carolina for tasking of messages and requests and exchange of critical information between all the state government agencies. Before North Carolina began using this software, all logging of messages and requests and reporting functions were conducted via a paper system. During Hurricane Fran in 1996, North Carolina became overloaded with incoming messages. Following the installation of EM/2000 in 1999 during Hurricane Floyd, North Carolina had over 10,000 messages and response requests in the EM/2000 system. Because of the automated nature, emergency managers were able to make appropriate response assignments in 5 minutes or less.

The State of Alabama also has installed EM/2000 at the State level, as well as in all 67 of its counties. In the last few years, Alabama has had 30-40 incidents requiring EM/2000, mostly weather-related, including numerous tornados and hurricanes. In addition, one of the hazards

[14] The EM/2000 originally was created using a Lotus Notes platform. Since its original development, there has been some question as to whether this product (and all public safety products) would be better served if they operated off of a Microsoft platform. CX2 continues to look into this modification, but has significant concerns that the Microsoft platform is not as secure as the Lotus Notes platform. Because secure communications are critical in any public safety application, the final decision as to which platform is preferable has not yet been made -- either by the regulators or the industry participants.

that Alabama faces is the chemical weapons stockpile located in Anniston. Over the next new years, chemical weapons will be destroyed on site, and EM/2000 is at the core of the response plan, should an incident occur.

Finally, at least six counties and three municipalities in the State of Florida also currently use the EM/2000 and have obtained good results from such use.[15] In the fall of 2004, a rash of hurricanes struck the Southeastern United States. CX2 customers that were directly affected by the hurricanes included Emergency Operations Centers at the state, county and local levels as well as utility companies. In Palm Beach County, Florida, Hurricane Frances and Hurricane Jeanne were real-life success stories for the EM/2000 technology. Using EM/2000 the Division of Chief of Palm Beach Gardens Fire-Rescue was able to use and track over 700 issues.

3. Med•Stat•US Rounds Out the Emergency Management Process.

In his statement in support of the FCC study mandated by the Intelligence Reform Act, FCC Commissioner Michael J. Copps stated that "we must begin to understand that emergency rooms and the medical community are integral parts of emergency response and homeland security. It we build a system that excludes the medical community it will be dangerously incomplete."[16] CX2's Med•Stat•US system is extremely responsive to Commissioner Copps' concern in that Med•Stat•US incorporates the medical community into the network of emergency response and homeland security, and allows for real time data to be transmitted back and forth between all necessary agencies, hospitals and responders. Med•Stat•US rounds out the CX2 emergency management system when used in consort with GeoCommand and EM/2000. This

[15] These include the counties of Palm Beach, Seminole, Volusia, Port Orange, Okaloosa and Martin; municipalities include Palm Beach Gardens, New Smyrna Beach and West Palm Beach.

[16] March 29 Public Notice, Statement of Commissioner Michael J. Copps.

application of a public safety solution to the medical community is essential to an effective overall public safety strategy.

Med•Stat•US software database solution provides the following real-time services: bed count availability (allows users to review bed availability by each hospital department); patient tracking (password protected registry that allows users to track fatalities and wounded individuals based on detailed characteristics); pharmaceutical tracking (tracks pharmaceutical stockpiles from off-site locations in the event of a biological or chemical outbreak); incident plans (includes a list of customizable checklists and download lists that are pulled in by the Incident Recorder during a particular emergency); Incident Recorder (during an emergency, allows users to gain instant access to plans based on detailed characteristics of the event, and provides the ability to open, track, and close an organization's response to a particular event or incident); message tracker (numerically lists all messages in real time during an emergency, and identifies if a message has been read and if a request has been completed); contact manager (lists all critical contacts, such as personnel and vendors, and shows complete contact information including address, phone, fax, and email); replication (automatically updates information to every user in the system, and, in the event of a disconnection with the server, individual users can continue to use the system locally, have access to all their information, and -- once the connection is restored -- access all updated information); and customization manager (includes all forms, checklists and call down lists within the system, and is customizable to conform to each facility's characteristics).

In sum, during the planning, first response, and follow-up stages of an incident, CX2's product line, combined with licensed 220 MHz spectrum, has demonstrated a successful opportunity for deployment at the national level. In a widely-used hypothetical of an attack or

natural disaster in Manhattan, NY, EM/2000 would be used to coordinate the response at the management level, GeoCommand would aid first responders with real-time data about the incident, constantly updating to allow for weather changes or situational changes, and Med•Stat•US would be used to coordinate the transportation of patients to the closest hospital with the most available beds and/or patient-specific treatment programs, equipment, drug inventory, etc. Each of these software solutions offer significant contributions to the public safety challenge and should be considered in any analysis of possible ways to meet public safety needs.

II.

CONCLUSION

In accordance with the FCC's March 29 Public Notice, CX2's data solutions GeoCommand, EM/2000 and Med•Stat•US -- in combination with dedicated spectrum in the 220-222 MHz band -- will create a "potential nationwide interoperable" mobile communications network that will provide emergency response providers and relevant Federal, State, and local government agencies with the ability "to communicate with each other as necessary, through a dedicated public safety network utilizing information technology systems and radio communications systems," and to exchange data with one another on demand, and in real time, as necessary. CX2's patented data radio technology also advances the well established Commission goal of spectrum efficiency, by incorporating narrowband technologies into real life applications. Through the application of CX2's narrowband data radio technology, the information flow for data communications can be accomplished in a more cost-effective and efficient manner, with voice and video communications carried over other broadband networks.

In addition, CX2 believes that its current technological and spectral capabilities, deployed on a national level, can achieve the public safety communications system sought by the White House in its "National Strategy for Homeland Security," which calls for "a fully integrated national emergency response system that is adaptable enough to deal with any terrorist attack, no matter how unlikely or catastrophic, as well as all manner of natural disasters" and a system that "aim[s] to ensure that leaders at all levels of government have complete incident awareness and can communicate with and command all appropriate response personnel."[17] To that end, there has been increasing focus on the ability of data networks and sensor radios to be deployed throughout metropolitan areas or on a nationwide level to detect bio-weapons or radiation entering into a given geographic area. In effect, to deploy the use strategically-placed bio-weapons sensors or radiation centers to create a barrier or a wall.[18] As discussed above, CX2's radios and data sensors have created such systems on the state level and community level, and are capable of being similarly deployed on a national level.

In addition, groups such as the Chemical and Biological Arms Control Institute and the FCC Spectrum Policy Task Force have suggested that allocation of public safety spectrum should be done using a command-and-control model, and that the allocation of public safety spectrum should be insulated from market forces to the greatest extent possible.[19] CX2 believes

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[17] The White House National Strategy for Homeland Security, July 2002, at p. 42 (http://www.whitehouse.gov/homeland/book/nat_strat_hls.pdf).

[18] See Steven Johnson, Stopping Loose Nukes, Wired Magazine (November 2002) at page 165. The article discusses the creation of an "atomic wall," which would be comprised of a vast array of sensors or ring of sensors that can be used to detect radiation entering a given geographic area. For example, a ring of radiation detection devices deployed along the Beltway in Washington, D.C. which could can roads, streets, alleys, and rail lines that bring people within 15 miles of Capitol Hill. "If nuclear material crossed the line, sensors would alert emergency response teams, which would intercept the vehicle before it entered the city."

[19] See Comments of the Chemical and Biological Arms Control Institute, ET Docket No. 02-135.

that the 220-222 MHz Band is another alternative for the installation and deployment of such a command-and-control model. Due to the undeveloped use of the band, lower number of licensees, advantageous coverage characteristics and reduced interference levels, 220-222 MHz provides an optimal solution for a data-drive comment-and-control nationwide public safety communications network.

Respectfully submitted,

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